Globetec

Maryland Technology Extension Service

New Fiber Contamination Test Helps Globetec Non-Wovens Reduce Costs, Retain Customers

Client Profile:
Globetec Non-wovens manufactures filter media used by original equipment manufacturers (OEMs) to make filters for respirators and spray paint systems. The filter media is manufactured from non-woven synthetic fibers. The company, established in 1997, is located in Bel Air, Maryland and employs 28 people.

Situation:
Globetec needed to verify the absence of silicone contamination in the raw polymeric material used to manufacture its filter media. The presence of any silicone contamination has a very adverse effect on painting system performance; if found in the company's raw materials, customer satisfaction could be heavily impacted. Globetec received a complicated test procedure, which uses dichloromethane solvent to detect the presence of silicone. However, the company was unable to find a test lab to perform the procedure, and contacted the Maryland Technology Extension Service (MTES), a NIST MEP network affiliate, for assistance.

Solution:
MTES evaluated the test procedure and tried to locate a test lab to perform the test. The initial search did not yield a suitable lab to perform the test.
When MTES realized that the test would be difficult and expensive to perform, it suggested Globtec use a simpler test using a Fourier Transform InfraRed (FTIR) spectrometer to directly analyze fiber samples. This instrument produces a spectrum resulting from the molecular absorption and transmission characteristics of the sample, thus creating a molecular “fingerprint” and eliminating the need for solvents.
MTES tested several polypropylene staple fiber samples, including a sample without contamination, a sample with known contamination, and the new sample. By analyzing the various spectrums, MTES was able to identify the presence of one of the silicone peaks in the contaminated sample, while the “good” sample and “new” sample were free of silicone peaks. This test methodology, MTES concluded, can be used to detect the presence of silicone contamination, but could potentially yield “false positives” if the additives are changed.
However, Globetec's new raw material was determined to be free of silicone contamination.

Results:
Verified product quality.
Maintained acceptable levels of customer satisfaction.
Avoided test costs of $4,000 by using alternative testing methodology.
Forecasting additional savings as more tests are performed using the new test procedure.

Testimonial:
"I have utilized Maryland Technology Extension Service over the past several years and I'm very satisfied with the results. They are responsive and help small companies like mine solve problems."

Mike Hocholwski, President